



ABSTRACTS

COMPARISON OF PRE-GROWTH PERFORMANCES OF TWO TILAPIA STRAINS (*Oreochromis niloticus*; GIFT AND HIGHLANDS) IN MADAGASCAR, UNDER FEED ONLY OR GREEN WATER CONDITIONS

Jean-Michel Mortillaro*, Domoina Rakotomanana, Diana E. AndriaMananjara, Ezra A. Raminoharisoa, Philippe Martel, Rija Andriamarolaza, Modestine Raliniaina, Olivier Mikolasek, Hugues De Verdal, Loharano Andriantafita, Tojoharivelo M. Rakotomalala and Arnaud H. Rasolofo

CIRAD – IRD – FOFIFA, Persyst – UMR 116/226 ISEM
Ampandrianomby, BP 1690
Antananarivo, Madagascar
jean-michel.mortillaro@cirad.fr

Previous experiments on various tilapia strains, in order to compare their pre-growth performances under low temperature in the highlands of Madagascar, highlighted the potential of the GIFT strain. However, even if growth of the latest can surpasses other strains in intensive aquaculture, no information is available under semi-intensive systems. Also, GIFT displayed high early stages mortality, supposedly due to a bowel obstruction when digestion was weakened by temperature, while the so called “Highland” strain is apparently more adapted and resistant to local environment.

The GIFT strain is up to now not well spread in the highlands of Madagascar where the corresponding strain is widespread. Also, intensive test in hapas are not well representative of aquaculture production systems in Madagascar, which are mainly based on a low input basis. Inputs are indeed limited by low availability of good feeds or fertilization as well as low farmers income for investment. Fertilizers are either often neglected due to leaky earthen ponds or feed not justified as the increasing proteins content of formulated feeds for tilapia pre-growth (El-Sayed 2018).

Given these findings, the aim of this study was to compare the pre-growth performances (from 3 to 100 g) of these two tilapia strains under feed only or green water conditions. To reach this aim, 6 ponds (100 m² each) were stocked with either GIFT (n = 3) or Highland (n = 3) strains (2 ind./m²) under daily extruded feeding, while the same number of ponds and strains were stocked under green water condition in the research experimental station of Andasibe, Périnet, Madagascar. One supplementary pond replicate of 500 m² for each of the four treatments was realized in a rural exploitation from the Ankazobe district. Green water was obtained from a weekly distribution basis of 20 kg of Nitrogen and 5 kg of Phosphorus from DAP and Urea per 10 000 m². Proteins provided through plankton from the fertilized green water were supplemented by daily inputs of rice bran flour for carbohydrates. Results on Feed – Fertilization comparison is expected to ease aquaculture systems design to local environment and constrains.

Strain	Treatment	Ponds (Station + Farm)	Density
GIFT	Feed	3 x 100 m ² + 1 x 500 m ²	2 Ind./m ²
	Fertilization	3 x 100 m ² + 1 x 500 m ²	2 Ind./m ²
Highlands	Feed	3 x 100 m ² + 1 x 500 m ²	2 Ind./m ²
	Fertilization	3 x 100 m ² + 1 x 500 m ²	2 Ind./m ²

Table 1: Experimental design for the four treatments